

TABLE 1 - 12/30/11
FIELD AND QC SAMPLING SUMMARY
DIMOCK RESIDENTIAL GROUNDWATER SITE
DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA

Parameter/Method	Matrix	Field Samples	Bkgd	QC Sample Summary					Total Field and QA/QC Analyses (not including MS/MSD) ³
				Dup	Trip ¹ Blanks	Rinsate ^{1,2} Blanks	Field ¹ Blanks	MS/MSD	
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015D)	drinking water	60	0	6	0	0	5	3	71
Anions, Chloride, Bromide, Fluoride, Nitrate/Nitrite as N, Orthophosphorus as P, Sulfate as SO ₄ (300.0)	drinking water	60	0	6	0	0	5	0	71
Bacteria (Fecal & total coliform, HPC)	drinking water	60	0	6	0	0	5	0	71
d ¹³ C and d ² H of methane (isotech)	drinking water	10	0	0	0	0	0	0	10
Complete compositional analysis of headspace gas (isotech)	drinking water	10	0	0	0	0	0	0	10
Diss. gases methane, ethane, ethene (isotech)	drinking water	10	0	0	0	0	0	0	10
Dissolved Gases, Methane, Ethane, & Ethene (RSK-175)	drinking water	60	0	6	0	0	5	0	71
Ethylene Glycol (8015M)	drinking water	60	0	6	0	0	5	0	71
DRO (8015M)	drinking water	60	0	6	0	0	5	0	71
GRO (8015M)	drinking water	60	0	6	0	0	5	0	71
Gamma Spec (Bi-212, Bi-214, K-40, Ra-226, Ra-228, Th-232, Th-234, U-234, U-235, U-238) (901.1)	drinking water	60	0	6	0	0	5	0	71
Glycols incl. 2-Butoxyethanol (8316)	drinking water	60	0	6	0	0	5	0	71
Gross Alpha/Beta (900.0)	drinking water	60	0	6	0	0	5	0	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg, B (200.8/245.1)	drinking water	60	0	6	0	0	5	6	71
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg, B (200.8/245.1)	Filtered drinking water	60	0	6	0	0	5	6	71
Methylene Blue Active Substances (MBAS) (SM 5540C)	drinking water	60	0	6	0	0	5	0	71
Nitrate/Nitrite (353.2)	drinking water	60	0	6	0	0	5	0	71
Oil & Grease (HEM) (1664A)	drinking water	60	0	6	0	0	5	0	71
Phosphorus, Total (365.1)	drinking water	60	0	6	0	0	5	0	71
Ra-226 (903.1)	drinking water	60	0	6	0	0	5	0	71
Ra-228 (904.0)	drinking water	60	0	6	0	0	5	0	71
Semi-Volatiles (TCL plus TICs) (CLP Trace plus TICs) (OLC03.2)	drinking water	60	0	6	0	0	5	3	71
Solids, Total Dissolved (TDS) (2540C)	drinking water	60	0	6	0	0	5	0	71
Solids, Total Suspended (TSS) (2540D)	drinking water	60	0	6	0	0	5	0	71
Stable isotopes of water (O,H) (isotech)	drinking water	10	0	0	0	0	0	0	10
2-Methoxyethanol (8015B)	drinking water	60	0	6	0	0	5	0	71
1-methylnaphthalene (8270 or equivalent)	drinking water	60	0	6	0	0	5	0	71
Volatiles incl. Acrylonitrile (TCL plus TICs) (CLP Trace - 0.5 ug/L QL) (OLC03.2)	drinking water	60	0	6	1 per cooler	0	5	3	71 + Trip Blanks for Coolers
Alpha Spec (Th-232, Th-228, Th-230) (EPA Method 910)	drinking water	60	0	6	0	0	5	0	71
Alpha Spec (U-234, U-235, U-236, U-238) (EPA 908.0)	drinking water	60	0	6	0	0	5	0	71
Rn-222 (SM 7500RN)	drinking water	60	0	6	0	0	5	0	71

Notes:

1. This QA sample will be an aqueous matrix.
2. Sample to be collected only if non-dedicated sampling equipment is used.
3. Estimate based on 5 sampling days

Key:

Bkgd = Background QA/QC = Quality assurance/quality control

MS/MSD = Matrix Spike/Matrix Spike Duplicate Sr = Strontium

Dup = Duplicate

TABLE 2 - 12/29/11 SAMPLE ANALYTICAL REQUIREMENTS SUMMARY DIMOCK RESIDENTIAL GROUNDWATER SITE DIMOCK, SUSQUEHANNA COUNTY, PENNSYLVANIA				
Analytical parameter and Method	Matrix	Sample Preservation	Holding Time	Sample Container(s)
Alcohols: Ethanol, methanol, 1-propanol, 1-butanol, 2-butanol (8015D)	drinking water	Ice, 6°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)
Anions: Chloride, Bromide, Fluoride, Nitrate/Nitrate as N, Orthophosphorus as P, Sulfate as SO ₄ (300.0)	drinking water	Ice, 6°C	28 days	One 500-ml HDPE
Bacteria (Fecal & total coliform, HPC)	drinking water	Ice, 4°C (.008% Na ₂ S ₂ O ₃ if residual Cl- present)	6 hours	125 ml Pre-sterilized polypropylene
d13C and d2H of methane (Isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*
Complete compositional analysis of headspace gas (isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*
Diss. gases methane, ethane, ethene (isotech)	drinking water	Ice, 4°C, biocide pill in sample container	6 months	one 1-L poly/TBD*
Dissolved Gases, Methane, Ethane, & Ethene (RSK-175)	drinking water	pH<2 with HCl and cool with ice, 4°C	7 days	One 40-ml glass vial
Ethylene Glycol (8015M)	drinking water	Ice, 4°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)
DRO (8105M)	drinking water	Ice, 4°C	7 days extract; 40 days analysis	Two 1-Liter amber glass jars with teflon-lined lids
GRO (8105M)	drinking water	pH<2 with HCl and cool with ice, 4°C	14 days	Three 40-ml glass vials (Fill to capacity with no head space)
Gamma Spec (Bi-212, Bi-214, K-40, Ra-226, Ra-228, Th-232, Th-234, U-235, U-238) (901.1)	drinking water	pH<2 with HNO ₃ and cool with ice, 4°C	6 months	One 1-Liter HDPE
Glycols incl. 2-Butoxyethanol (8316)	drinking water	Ice, 6°C	7 days	Three 40-ml glass vials (Fill to capacity with no head space)
Gross Alpha/Beta (900.0)	drinking water	pH<2 with HNO ₃ and cool with ice, 4°C	6 months	One 1-Liter HDPE
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg, B (200.8/245.1)	drinking water	pH<2 with HNO ₃ and cool with ice, 4°C	6 months	One 1-Liter HDPE
Metals: Al, Ca, Cr, Cu, Fe, Mg, Mn, Ni, Na, As, Se, Zn, Ti, Sr, Ba, Sn, Sb, Be, Cd, Co, Ti, U, V, K, Hg, B (200.8/245.1)	(filtered) drinking water	pH<2 with HNO ₃ and cool with ice, 4°C	6 months	One 1-Liter HDPE
Methylene Blue Active Substances (MBAS) (SM 5540C)	drinking water	Ice, 4°C	48 hours	One 500-ml HDPE
Nitrate/Nitrite (Total N) (353.2)	drinking water	pH<2, H ₂ SO ₄ , and cool with ice, 4°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids
Oil & Grease (HEM) (1664A)	drinking water	pH<2, H ₂ SO ₄ , and cool with ice, 4°C	28 days	One 1-Liter amber glass jars with teflon-lined lids
Phosphorus, Total (365.1)	drinking water	Ice, 6°C	28 days	One 400-ml HDPE
Ra-226 (903.1)	drinking water	pH<2 with HNO ₃ and cool with ice, 4°C	6 months	One 1-Liter HDPE
Ra-228 (904.0)	drinking water	pH<2 with HNO ₃ and cool with ice, 4°C	6 months	One 1-Liter HDPE
Semi-Volatiles (TCL plus TICs) (OLC03.2)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids
Solids, Total Dissolved (TDS) (SM 2540C)	drinking water	Ice, 6°C	7 days	One 500-ml HDPE
Solids, Total Suspended (TSS) (SM 2540D)	drinking water	Ice, 6°C	7 days	One 500-ml HDPE
Stable isotopes of water (O,H) (Isotech)	drinking water	Ice, 4°C	6 months	one 1-L poly/TBD*
2-Methoxyethanol (8015B)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids
1-methylnaphthalene (8270 or equivalent)	drinking water	Ice, 6°C	7 days	Two 1-Liter amber glass jars with teflon-lined lids
Volatiles (TCL plus TICs) (CLP Trace - 0.5 ug/L QL) (OLC03.2) incl. Acrylonitrile	drinking water	2 drops of 1:1 HCl, pH<2, Ice, 6°C	7 days	Six 40-ml glass vials w/Teflon lined cap (no head space)
Alpha Spec Th-232, Th-228, Th-230 (EPA Method 910)	drinking water	5 mls HCl and cool with ice, 4°C	As soon as possible	One 1-Liter HDPE
Alpha Spec U-234, U-235, U-236, U-238 (EPA 908.0)	drinking water	pH<2 with HCl and cool with ice, 4°C	6 months?	One 1-Liter HDPE
Rn-222 (ASTM D5072/SM 7500Rn)	drinking water	Ice, 4°C	96 hours	One 40-ml glass vial
Note: Analyses will be combined into sample bottles as applicable/appropriate based on determination by lab(s). KEY: °C = degrees Celsius C14 = Carbon 14 isotope CLP = Contract Lab Program D13C = delta of carbon-13 D2H = delta of deuterium H ₂ SO ₄ = Sulfuric Acid HDPE = High density polyethylene HNO ₃ = Nitric Acid HPC = Heterotrophic Plate Count ml = milliliter Na ₂ S ₂ O ₃ = Sodium Thiosulfate pH = potential Hydrogen QL = Quantitation Limit Sr = Strontium TCL = Target Compound List TICs = Tentatively Identified Compounds ug/L = micrograms per liter * all parameters to be analyzed by isotech can be combined into one 1-L poly bottle with septum lid				